REMARKS

This is a full and timely response to the outstanding non-final Office Action

mailed January 7, 2004. Reconsideration and allowance of the application and

pending claims are respectfully requested.

I. Claim Rejections - 35 U.S.C. § 102(a)

A. Statement of the Rejection

Claims 2-4, 6-8, 19 and 20 have been rejected under 35 U.S.C. § 102(a) as

allegedly being anticipated by *MacInnis, et al.* (*"MacInnis,"* U.S. Pat. No. 6,501,480).

Applicants respectfully traverse this rejection.

B. Applicants' Claimed Inventions

As provided in independent claims 2 and 20, Applicants claim:

2.   A device for producing a composite graphical data stream containing pixel
data corresponding to an image to be rendered, the composite graphical data stream
being formed from **multiple graphical data streams, each of the multiple
graphical data streams being provided by a graphics pipeline, each graphics
pipeline** being configured to process pixel data corresponding to at least a portion of
the image to be rendered, said device comprising:
        an input mechanism configured to receive the multiple graphical data streams
from the **graphics pipelines**, provide a frame of data corresponding to the image to
be rendered, and insert pixel data from the multiple graphical data streams into said
frame of data such that, in response to receiving a first of the multiple graphical data
streams, said input mechanism provides said frame of data and inserts the pixel data
from the first of the multiple graphical data streams into said frame of data to form at
least a portion of the composite graphical data stream;

wherein said input mechanism has a first compositing element and a second compositing element, said first compositing element being configured to provide said frame of data in response to receiving pixel data corresponding to the first of the multiple graphical data streams, **said first compositing element being further configured to insert the pixel data corresponding to the first of the multiple graphical data streams into said frame of data to form a first compositing graphical data stream, said pixel data corresponding to the first of the multiple graphical data streams and a first displayed portion of said image, said second compositing element being configured to receive pixel data corresponding to the second of the multiple graphical data streams and said first compositing graphical data stream, said pixel data corresponding to the second of the multiple graphical data streams and a second displayed portion of said image, said second compositing element being further configured to combine the pixel data corresponding to the second of the multiple graphical data streams and said first compositing graphical data stream to form a second compositing digital video data stream.** (Emphasis added).

20.   A device for producing a composite digital video data stream containing pixel data corresponding to an image to be rendered, the composite digital video data stream being formed from **multiple digital video data streams, each of the multiple digital video data streams being provided by a graphics pipeline, each graphics pipeline** being configured to process pixel data corresponding to at least a portion of the image to be rendered, said device comprising:

an input mechanism configured to receive the multiple digital video data streams from the **graphics pipelines**, provide a frame of data corresponding to the image to be rendered, and insert pixel data from the multiple digital video data streams into said frame of data such that, in response to receiving a first of the multiple digital video data streams, said input mechanism provides said frame of data and inserts the pixel data from the first of the multiple digital video data streams into a said frame of data to form at least a portion of the composite digital video data stream;

wherein said input mechanism has a first compositing element and a second compositing element, said first compositing element being configured to provide said frame of data in response to receiving pixel data corresponding to the first of the multiple digital video data streams, **said first compositing element being further configured to insert the pixel data corresponding to the first of the multiple digital video data streams into said frame of data to form a first compositing digital video data stream, said pixel data corresponding to the first of the multiple digital video data streams and a first displayed portion of said image, said second compositing element being configured to receive pixel data corresponding to the second of the multiple digital video data streams and said first compositing digital video data stream, said pixel data corresponding to the second of the multiple digital video data streams and a second displayed portion of said image,** said second compositing element being further configured to combine the pixel data corresponding to the second of the multiple digital video data streams and said first compositing digital video data stream to form a second compositing digital video data stream. (Emphasis Added)

C. The *MacInnis* Reference

MacInnis discloses a system that composites graphical data from a single graphics pipeline (see Column 6, lines 19-21.) and one or more streams of video data not supplied by the graphics pipeline. The system in *MacInnis* creates a composite image based on multiple window overlays. (see column 4, lines 1-61 and col. 5, lines 24-50.)

Thus, *MacInnis* does not disclose, teach, or suggest rendering, in parallel, an image in a single screen space by spatially dividing a window into portions across multiple graphics pipelines and compositing these processed portions.

D. Discussion of the Rejection

It is axiomatic that "[a]nticipation requires the disclosure in a single prior art reference of *each element* of the claim under consideration." *W. L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1554, 220 U.S.P.Q. 303, 313 (Fed. Cir. 1983) (emphasis added). Therefore, every claimed feature of the claimed invention must be represented in the applied reference to constitute a proper rejection under 35 U.S.C. § 102(a).

In the present case, not every feature of the claimed invention is represented in the *MacInnis* reference. For example, *MacInnis* does not disclose "an input mechanism configured to receive the multiple digital video data streams from the **graphics pipelines.**" *MacInnis* fails to disclose, teach, or suggest **graphics pipelines**, as recited in the preamble and body of independent claim 2. In the section cited above (col. 6, lines 19-21), a <u>single</u> graphics pipeline is disclosed. Thus, Applicants respectfully submit that the rejection to claim 2 should be withdrawn.

MacInnis also fails to disclose other features described in claim 2. The Office

Action alleges the following in Section 15:

> Examiner respectfully notes, however, that, in the claims,
> MacInnis discloses frame-based compositing of pixels
> corresponding to separate displayed portions of an image
> (Column 5, line 24 through Column 6, line 67, *graphics
> blending, next window, two or more graphics windows*;
> Column 11, lines 52-55; multiple compositors: *a video
> compositor* (Column 8, lines 61-67), *a graphics compositor
> engine...composited in other line buffers*. (Column 47, line
> 25-39), *upper layers are composited in memory buffer
> storage buffers called line buffers. Each line buffer...is sized
> to contain pixels for one scan line* (column 46-43-45). (No
> emphasis added)

Applicants respectfully disagree. The sections cited for alleged support of frame buffers

describe a frame buffer that resides after the display engine. (see col. 5, lines 24-34.)

From this cited section, it is evident that the display engine "blends the graphics

windows to create blended graphics output...the display engine transfers the processed

graphics information to memory buffers that are configured as line buffers. In an

alternate embodiment, the buffer may include a frame buffer." Clearly, the "buffer" this

section of *MacInnis* references is a buffer that receives the blended graphics, or the

entire graphics image, not portions (**first and second compositing graphical data

streams**) that are composited to make up the entire graphics image. If the "frame

buffer" of *MacInnis* received the portions that make up a whole, what purpose would the

display engine serve? Is the Office Action suggesting that the "frame buffer" is now

doing the blending? Thus, *MacInnis* does not disclose **said first compositing element

being further configured to insert the pixel data corresponding to the first of the

multiple graphical data streams into said frame of data to form a first compositing

graphical data stream, said pixel data corresponding to the first of the multiple

graphical data streams and a first displayed portion of said image, said second**

compositing element being configured to receive pixel data corresponding to the second of the multiple graphical data streams and said first compositing graphical data stream, said pixel data corresponding to the second of the multiple graphical data streams and a second displayed portion of said image said second compositing element being further configured to combine the pixel data corresponding to the second of the multiple graphical data streams and said first compositing graphical data stream to form a second compositing digital video data stream, as recited in claim 2. Thus, Applicants respectfully submit that the rejection to claim 2 be withdrawn.

Further, the Office Action alleges the following in Section 16:

> Applicant asserts a distinguishment (sic) between video image data and graphics image data, and that MacInnis is compositing a video signal with a graphics signal. The Examiner respectfully replies, however, that, in the claims, MacInnis clearly addresses this matter, thus: "The display engine is part of the graphics display system that receives display pixel data from any combination of locally attached video and graphics input ports, processes the data in some way, and produces final display pixels as output. This application includes references to both graphics and video, which reflects in certain ways the structure of the hardware itself. This split does not, however, imply the existence of any fundamental difference between graphics and video, and in fact much of the functionality is common to both. Graphics is used herein may include graphics, text and video (Column 1, lines 45-60).
>
> Furthermore, MacInnis discloses compositing/blending graphics data streams (*After the processing of the video signals and the graphics data have been completed...receives...data from...the graphics display pipeline, **respectively**, blending a plurality of graphics images into a blended graphics image, blending of different layers of graphics and/**or** video,* Columns 44, lines 1-38; each pixel, reading pixels from memory, as in a conventional graphics display device, Column 45, line 64 through 46, line 55; the graphics compositor engine, Column 47, lines 24-37; Figure 5, element 140, Figure 28, element 904).

Applicants submit that there is a fundamental difference in the structure of the device asserted in claim 2 versus the structure of the system disclosed in *MacInnis*. *MacInnis* discloses a <u>single graphics pipeline</u>. As described in the cited sections (*e.g.*, Column 44), the system in *MacInnis* combines data from a <u>single graphics pipeline</u> and one or more streams not provided by the graphics pipeline. In claim 2, **graphics pipelines** (plural) are described, which can process the data for portions of a single window and composite this processed data to render an image.

In this regard, it does not appear that the Office Action is affording patentable weight to the recitation of **graphics pipelines**. Applicants respectfully assert that it is improper to disregard this recitation because it is a limitation of the claim (*e.g.*, it is in the body of the claim as well as the preamble), and further because it is "necessary to give life, meaning and vitality to the claim." (see Section 2111.02 of the Manual of Patent Examining Procedure (MPEP).) Further provided under this MPEP section is that "any terminology in the preamble that limits the structure of the claimed invention must be treated as a claim limitation." Thus, Applicants respectfully submit that the recitation of **graphics pipelines** in the preamble and body of the claim should be accorded patentable weight, and that its inclusion as a limitation provides patentable distinction over *MacInnis*.

Due to these clear shortcomings of the *MacInnis* reference, Applicant respectfully asserts that *MacInnis* does not anticipate Applicants' claim 2. Therefore, Applicant respectfully requests that the rejection of claim 2 and claims 3-4, 6-8, and 19, which depend therefrom, be withdrawn.

Applicants also traverse the rejection of the dependent claims on other grounds. For example, regarding the rejection to claim 3, Applicants respectfully

submit that *MacInnis* does not disclose "wherein said input mechanism is configured to combine said two-dimensional pixel data and said three-dimensional pixel data **by replacing** at least a portion of the pixel data provided by the second of the multiple graphical data streams with at least a portion of the pixel data provided by the first of the multiple graphical data streams," as recited in claim 3. There is no mention of "replacement" or "substitution" or the like, particularly the replacement of pixel data, anywhere in the *MacInnis* reference and clearly not in Column 57, lines 3, 6, 15, and 17. Thus, Applicants respectfully request that the rejection of claim 3 should be withdrawn.

With regard to claim 4, Applicants fail to see where in the cited section the features of claim 4 are disclosed, namely "**said controller being configured to provide a first control signal to said input mechanism, said first control signal containing information regarding which portion of said frame of data corresponds to the pixel data provided from the first of the multiple graphical data streams such that, in response to receiving said first control signal and the pixel data from the first of the multiple graphical data streams, said input mechanism inserts the pixel data from the first of the multiple graphical data streams into said corresponding portion of said frame of data to form at least a portion of the composite graphical data stream.**" In fact, in the cited section under Column 4, lines 54-55, it is stated that "each window is preferably independent of the others." By virtue of that statement, it would appear that rendering a single window from multiple graphical data streams would be a feature that *MacInnis* actually teaches away. Thus, Applicants respectfully request that the rejection to claim 4 be withdrawn.

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With regard to claims 6 – 8 and 19, reference is made to **each of the graphics pipelines**, a feature that, as explained above, is not disclosed in *MacInnis*. Thus, Applicants respectfully request that the rejection to claims 6 - 8 and 19 be withdrawn.

With regard to independent claim 20, Applicants respectfully submit that the *MacInnis* reference does not disclose an input mechanism configured to receive the multiple digital video data streams from the **graphics pipelines**, as recited in the body and preamble of claim 20. Only a single graphics pipeline is disclosed in *MacInnis*, and thus the *MacInnis* reference fails to include an explicit limitation of claim 20.

Additionally, Applicants respectfully submit that *MacInnis* fails to disclose **said first compositing element being further configured to insert the pixel data corresponding to the first of the multiple digital video data streams into said frame of data to form a first compositing digital video data stream, said pixel data corresponding to the first of the multiple digital video data streams and a first displayed portion of said image, said second compositing element being configured to receive pixel data corresponding to the second of the multiple digital video data streams and said first compositing digital video data stream, said pixel data corresponding to the second of the multiple digital video data streams and a second displayed portion of said image,** as recited in claim 20. The sections in *MacInnis,* cited in support of the Office Action rejection, describe a system that blends video windows, and video from different sources, but Applicants fail to see where in the cited section the elements of claim 20 are disclosed, namely the **first compositing element being further configured to insert the pixel data corresponding to the first of the multiple digital video data streams into said frame of data to form a first compositing digital video data stream and said second compositing element being configured to receive pixel data corresponding**

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to the second of the multiple digital video data streams and said first compositing

digital video data stream. Thus, Applicants respectfully submit that *MacInnis* does

not disclose all of the features of claim 20, and respectfully request that the rejection

to claim 20 be withdrawn.

II. Claim Rejections - 35 U.S.C. § 103(a)
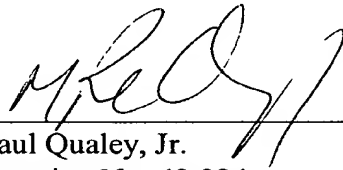
A. Statement of the Rejection

Claims 5 and 9 have been rejected under 35 U.S.C. § 103(a) as allegedly being

anticipated by *MacInnis* in view of *Jones et al.*, ("*Jones*," U.S. Pat. No. 6,573,928).

MacInnis fails to disclose all of the claimed features of claims 20, from which

claims 5 and 9 depend. As *Jones* does not remedy the aforementioned deficiencies of

MacInnis, Applicants traverse this rejection and respectfully request that the rejection to

claims 5 and 9 be withdrawn.

CONCLUSION

Applicant respectfully submits that pending claims 2-9, 19, and 20 are in condition for allowance. Favorable reconsideration and allowance of the present application and all pending claims are hereby courteously requested. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (770) 933-9500.
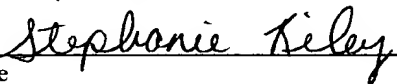
Respectfully submitted,

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